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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,019	12/03/2003	Gary L. Johnson	CPI-042CN2	8027

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EXAMINER	
DAVIS, MINH TAM B	

ART UNIT	PAPER NUMBER
1642	

MAIL DATE	DELIVERY MODE
05/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/728,019	JOHNSON, GARY L.	
	Examiner	Art Unit	
	MINH-TAM DAVIS	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,7-11,14 and 35-38* is/are pending in the application.

4a) Of the above claim(s) *8-11,14 and 353* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7 and 8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/22/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's election with traverse of Group I, claims 1-4, 7-8, species the MEKK1.2 SEQ ID NO:3 in paper of 03/12/07 is acknowledged.

The traverse is on the ground that:

1) Groups 1-3 should be re-grouped as a single group, because they are drawn to structurally similar subject matter.

2) Groups 4-6 should be rejoined with groups 1-3, because they share common utility, i.e ability to mediate apoptosis, and high degree of homology between the claimed proteins and corresponding variants.

The traverse has been considered but is not found to be persuasive for the following reasons:

1) The structure of the mouse, human and rat MEKK1 proteins of groups 1-3 are structurally distinct.

2) The variants of groups 4-6 have distinct properties than the corresponding proteins of groups 1-3, because the variants of groups 4-6 are resistant to proteolysis by a caspase.

Applicant cancels claims 2-6.

Accordingly, Group I, claims 1, 7-8 are examined in the instant application.

Sequence Rule

This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 C.F.R. 1.821(a)(1) and (a)(2).

However, this application fails to comply with the requirements of 37 C.F.R. 1.821-25 for the reasons set forth below:

The specification recites sequences without being accompanied by a sequence identification number, for example, on pages 65, 77, and 100.

Proper correction is suggested.

Claim Rejections - 35 USC § 112, Second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 is indefinite, because it is not clear how "an amino acid sequence", which reads on a fragment, as small as a few amino acids, could be 95% similar to the full length SEQ ID NO:3.

This rejection could be obviated by amending the claim to replace "an" with "the".

Claim Rejections - 35 USC § 112, First paragraph, Written Description

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 8 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification discloses that protease cleaving at amino acid Asp874 of the MEKK1 SEQ ID NO:3 produces a C-terminal fragment, which is required for inducing cell death (p.96, last paragraph, p.104-105). The specification discloses that both kinase activity and protease cleavage are required to mediate apoptosis (p.109).

The prior art discloses a 1593 amino acid MEKK1 protein which is 95% similar to SEQ ID NO:3 (see US 6,333,170,SEQ ID NO:4.

Claim 8 encompasses a genus of variants of SEQ ID NO:3 with unknown structure and function.

Although drawn to DNA arts, the findings in University of California v. Eli Lilly and Co., 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997) and Enzo Biochem, Inc. V. Gen-Probe Inc. are relevant to the instant claims. The Federal Circuit addressed the application of the written description requirement to DNA-related inventions in University of California v. Eli Lilly and Co., 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997). The court stated that "[a] written description of an invention involving a chemical genus, like a description of a chemical species, requires a precise definition, such as by structure, formula, [or] chemical name, of the claimed subject matter sufficient to distinguish it from other materials." Id. At 1567, 43 USPQ2d at 1405. The court also stated that

> a generic statement such as "vertebrate insulin cDNA" or "mammalian insulin cDNA" without more, is not an adequate written description of the genus because it does not distinguish the genus from others, except by function. It does not specifically define any of the genes that fall within its definition. It does not define any structural features commonly possessed by members of the genus that distinguish them from others. One skilled in the art therefore cannot, as one can do with a fully described genus, visualize or recognize the identity of the members of the genus. A definition by function, as we have previously indicated, does not suffice to define the genus because it is only an indication of what the gene does, rather than what it is. Id. At 1568, 43 USPQ2d at 1406. The court concluded that "naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material." Id.

Finally, the court addressed the manner by which a genus of cDNAs might be described. "A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the genus." Id.

The Federal Circuit has recently clarified that a DNA molecule can be adequately described without disclosing its complete structure. See Enzo Biochem, Inc. V. Gen-Probe Inc., 296 F.3d 1316, 63 USPQ2d 1609 (Fed. Cir. 2002). The Enzo court adopted the standard that □the written description requirement can be met by "show[ing] that an invention is complete by

disclosure of sufficiently detailed, relevant identifying characteristics ....i.e., complete or partial structure, other physical and/or chemical properties, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics." Id. At 1324, 63 USPQ2d at 1613 (emphasis omitted, bracketed material in original).

The inventions at issue in Lilly and Enzo were DNA constructs per se, the holdings of those cases are also applicable to claims such as those at issue here.

In this case, the specification does not describe "an amino acid sequence at least 95% identical to SEQ ID NO:3" in a manner that satisfies either the standards as shown in the example of Lilly or Enzo. The specification does not provide sufficient structure or common structure, other than SEQ ID NO: 3, to support the broad breath of the claimed genus. Nor is there any functional characteristics coupled with a known or disclosed correlation between structure and function. Although the specification discloses a single protein, SEQ ID NO: 3, this does not provide a description of "an amino acid sequence at least 95% identical to SEQ ID NO:3", that would satisfy the standard as shown in the example of Enzo.

The specification also fails to describe "an amino acid sequence at least 95% identical to SEQ ID NO:3", by the standards shown in the example in Lilly. The specification describes only a single polypeptide SEQ ID NO:3. Therefore, it necessarily fails to describe a "representative number" of such species. In addition, the specification also does not describe "structural features common to the members of the genus, which features constitute a substantial portion of the genus."

The specification does not provide an adequate written description of "an amino acid sequence at least 95% identical to SEQ ID NO:3" that is required to practice the claimed invention. Thus, the specification does not meet the 112, first paragraph written description requirement, and one of skill in the art would reasonably conclude that Applicant did not have possession of "an amino acid sequence at least 95% identical to SEQ ID NO:3" at the time the invention was made.

Claim Rejections - 35 USC § 112, First Paragraph, Scope

Claims 1, 7 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an active fragment of MEKK1 protein consisting of amino acids 875-1493 of SEQ ID NO:3, wherein said fragment "induces" apoptosis, does not reasonably provide enablement for a fragment of MEKK1 protein having at least 95% identity with an amino acid sequence consisting of about amino acids 875-1493 of SEQ ID NO:3, or consisting of amino acids 875-1493 of SEQ ID NO:3, wherein said fragment "mediates" apoptosis. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

To comply with the enablement requirement of 35 U.S.C. § 112, first paragraph, the specification must enable one skilled in the art to make and use the claimed invention without undue experimentation. The claims are evaluated for enablement based on the Wands analysis. Many of the factors regarding undue experimentation have been summarized in *In re Wands*, 858 F.2d 731,8 USPQ2d 1400 (Fed.Circ.1988) as follows: (1) the nature of the invention, (2) the state of the prior art, (3) the predictability or lack thereof in the art, (4) the amount of

direction or guidance present, (5) the presence or absence of working examples, (6) the quantity of experimentation necessary, (7) the relative skill of those in the art, and (8) the breadth of the claims.

The specification discloses that a 672 amino acids, truncated C-terminal MEKK1 fragment taught by Lange-Carter et al, 1993, is an activated form of MEKK1. The specification discloses that the expression of said fragment induces cell death, which requires the kinase activity of the fragment (p.77-80). The specification discloses that protease cleaving at amino acid Asp874 of the MEKK1 SEQ ID NO:3 produces a C-terminal fragment, which is required for inducing cell death (p.96, last paragraph, p.104-105), and that both kinase activity and protease cleavage are required to mediate apoptosis (p.109). The specification does not disclose that the C-terminal fragment also decreases or inhibits apoptosis.

However, "mediating" apoptosis as claimed in claims 1, 7 encompasses decreasing or abolishing apoptosis.

One does not expect nor one can predict that the active C-terminal fragment of SEQ ID NO:3 could have opposite function, i.e. decreasing or abolishing apoptosis.

Given the above unpredictability, and in view of the complex nature of the invention, a lack of sufficient disclosure in the specification, and little is known in the art concerning the claimed invention, it would have been undue experimentation for one of skill in the art to practice the claimed invention, that is commensurate in scope of the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Lange-Carter et al, 1993, Science, 260 (5106): 315-319.

Claim 1 is drawn to: An isolated active fragment of an MEKK1 protein consisting of an amino acid sequence having at least 95% identity to an amino acid sequence consisting of "about" amino acids 875-1493 of SEQ ID NO:3, wherein said active fragment mediates apoptosis.

Claim 7 is drawn to: The active fragment of claim 1, which consists of "about" amino acids 875-1493 of SEQ ID NO:3.

The language "consisting of about" is reasonably interpreted as an open language, comprising.

Lange-Carter et al teach a mouse 672 amino acids MEKK protein, which induces apoptosis. Under MPSRCH sequence similarity search, the protein taught by Lange-Carter et al encompasses amino acids 875-1493 of SEQ ID NO:3 (MPSRCH search result, 2007, us-10-728-019-3-copy_875-1493, rpr, result 1, pages 1-2)

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MPSRCH search result, 2007, us-10-728-019-3-copy-875-1493.rpr:
RESULT 1
A46212
MEK kinase - mouse
C;Species: Mus musculus (house mouse)
C;Date: 22-Sep-1993 #sequence_revision 18-Nov-1994 #text_change 31-Dec-2004
C;Accession: A46212
R;Lange-Carter, C.A.; Pleiman, C.M.; Gardner, A.M.; Blumer, K.J.; Johnson,
G.L.
Science 260, 315-319, 1993
A;Title: A divergence in the MAP kinase regulatory network defined by MEK
kinase and Raf.
A;Reference number: A46212; MUID:93227040; PMID:8385802
A;Accession: A46212
A;Status: preliminary; not compared with conceptual translation
A;Molecule type: nucleic acid
A;Residues: 1-687 <LAN>
A;Cross-references: UNIPARC:UPI000017A420
A;Experimental source: brain
A;Note: sequence extracted from NCBI backbone (NCBIP:129292)
C;Keywords: ATP
F;416-683/Domain: protein kinase homology <KIN>
F;424-432/Region: protein kinase ATP-binding motif

  Query Match             100.0%;  Score 3213;  DB 2;  Length 687;
  Best Local Similarity   100.0%;  Pred. No. 2.5e-123;
  Matches  619;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps
0;

Qy          1 GHQDSLQAVAPTSCLENSSLEHTVHREKTGKGLSATRLSASSEDISDRLAGVSVGLPSST 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         69 GHQDSLQAVAPTSCLENSSLEHTVHREKTGKGLSATRLSASSEDISDRLAGVSVGLPSST
128

Qy         61 TTEQPKPAVQTKGRPHSQCLNSSPLSHAQLMFPAPSAPCSSAPSVPDISKHRPQAFVPCK
120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        129 TTEQPKPAVQTKGRPHSQCLNSSPLSHAQLMFPAPSAPCSSAPSVPDISKHRPQAFVPCK
188

Qy        121 IPSASPQTQRKFSLQFQRNCSEHRDSDQLSPVFTQSRPPPSSNIHRPKPSRPVPGSTSKL
180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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Db        189 IPSASPQTQRKFSLQFQRNCSEHRDSDQLSPVFTQSRPPPSSNIHRPKPSRPVPGSTSKL
248

Qy        181 GDATKSSMTLDLGSASRCDDSFGGGGNSGNAVIPSDETVFTPVEDKCRLDVNTELNSSIE
240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        249 GDATKSSMTLDLGSASRCDDSFGGGGNSGNAVIPSDETVFTPVEDKCRLDVNTELNSSIE
308

Qy        241 DLLEASMPSSDTTVTFKSEVAVLSPEKAENDDTYKDDVNHNQKCKEKMEAEEEEALAIAM
300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        309 DLLEASMPSSDTTVTFKSEVAVLSPEKAENDDTYKDDVNHNQKCKEKMEAEEEEALAIAM
368

Qy        301 AMSASQDALPIVPQLQVENGEDIIIIQQDTPETLPGHTKAKQPYREDAEWLKGQQIGLGA
360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        369 AMSASQDALPIVPQLQVENGEDIIIIQQDTPETLPGHTKAKQPYREDAEWLKGQQIGLGA
428

Qy        361 FSSCYQAQDVGTGTLMAVKQVTYVRNTSSEQEEVVEALREEIRMMGHLNHPNIIRMLGAT
420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        429 FSSCYQAQDVGTGTLMAVKQVTYVRNTSSEQEEVVEALREEIRMMGHLNHPNIIRMLGAT
488

Qy        421 CEKSNYNLFIEWMAGGSVAHLLSKYGAFKESVVINYTEQLLRGLSYLHENQIIHRDVKGA
480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        489 CEKSNYNLFIEWMAGGSVAHLLSKYGAFKESVVINYTEQLLRGLSYLHENQIIHRDVKGA
548

Qy        481 NLLIDSTGQRLRIADFGAAARLASKGTGAGEFQGQLLGTIAFMAPEVLRGQQYGRSCDVW
540
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        549 NLLIDSTGQRLRIADFGAAARLASKGTGAGEFQGQLLGTIAFMAPEVLRGQQYGRSCDVW
608

Qy        541 SVGCAIIEMACAKPPWNAEKHSNHLALIFKIASATTAPSIPSHLSPGLRDVAVRCLELQP
600
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        609 SVGCAIIEMACAKPPWNAEKHSNHLALIFKIASATTAPSIPSHLSPGLRDVAVRCLELQP
668

Qy        601 QDRPPSRELLKHPVFRTTW 619
              ||||||||||||||||||
Db        669 QDRPPSRELLKHPVFRTTW 687
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2. Claim 8 is rejected under 35 U.S.C. 102(e) as being anticipate by US 6,333,170 (Johnson, G L, Filed on 04/05/1996).

Claim 8 is drawn to: An isolated polypeptide comprising an amino acid sequence selected from the group consisting of: the amino acid sequence set forth as SEQ ID NO:3; and an amino acid sequence at least 95% identical to said sequence.

US 6,333,170 teaches a MEKK sequence, SEQ ID NO:4.

Under MPSRCH sequence similarity search, the protein taught by US 6,333,170 is 95% similar to SEQ ID NO:3 (MPSRCH search result, 2007, us-10-728-019-3.rai,result 4, pages 2-5).

MPSRCH search result, 2007, us-10-728-019-3.rai,result 4, pages 2-5:

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RESULT 4
US-08-628-829-4
; Sequence 4, Application US/08628829A
; Patent No. 6333170
; GENERAL INFORMATION:
;  APPLICANT: Johnson, Gary L.
;  TITLE OF INVENTION: Method And Product For Regulating Cell Responsiveness
To External          Signals
;  FILE REFERENCE: CPI-004DVCP3
;  CURRENT APPLICATION NUMBER: US/08/628,829A
;  CURRENT FILING DATE: 1996-04-05
;  EARLIER APPLICATION NUMBER: 08/440,421
;  EARLIER FILING DATE: 1995-05-15
;  EARLIER APPLICATION NUMBER: 08/323,460
;  EARLIER FILING DATE: 1994-10-14
;  EARLIER APPLICATION NUMBER: 08/049,254
;  EARLIER FILING DATE: 1993-05-15
;  EARLIER APPLICATION NUMBER: 08/410,602
;  EARLIER FILING DATE: 1995-04-24
;  EARLIER APPLICATION NUMBER: 08/472,934
;  EARLIER FILING DATE: 1995-06-06
;  NUMBER OF SEQ ID NOS: 25
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 4
;   LENGTH: 1593
;   TYPE: PRT
;   ORGANISM: Mus musculus
US-08-628-829-4

  Query Match             95.9%;  Score 7416.5;  DB 2;  Length 1593;
  Best Local Similarity   96.1%;  Pred. No. 0;
  Matches 1449;  Conservative    1;  Mismatches   27;  Indels   31;  Gaps
5;

Qy          1 MAAAAGDRASSSGFPGAAAASPEAGGGGGGGGALQGSGAPAAGAAGLLREPGSAGRERAD 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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Db        102 MAAAAGDRASSSGFPGAAAASPEAGGGGGGGGALQGSGAPAAGAAGLLREPGSAGPSART
161

Qy         61 ----------WRRRQLRKVRSVELDQLPEQPLFLAAASPPCPSTSPSPEPADAAAG---
106

                      |     |  ||               :||| |       |   | |
Db        162 GGGGTCAKCGVWSWTSCRSSRS--------------SSPP-PRRPAHLLPVAGARGRGC
205

Qy        107 ASRFQPA-AGPPPPGAASRCGSHSAELAAARDSGARSPAGAEPPSAAAPSGREMENKETL
165

             |   || ||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        206 RSESLPARAGPPPPGAASRCGSHSAELAAARDSGARSPAGAEPPSAAAPSGREMENKETL
265

Qy        166 KGLHKMEDRPEERMIREKLKATCMPAWKHEWLERRNRRGPVVVKPIPIKGDGSEVNNLAA
225

             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        266 KGLHKMEDRPEERMIREKLKATCMPAWKHEWLERRNRRGPVVVKPIPIKGDGSEVNNLAA
325

Qy        226 EPQGEGQAGSAAPAPKGRRSPSPGSSPSGRSVKPESPGVRRKRVSPVPFQSGRITPPRRA
285

             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        326 EPQGEGQAGSAAPAPKGRRSPSPGSSPSGRSVKPESPGVRRKRVSPVPFQSGRITPPRRA
385

Qy        286 PSPDGFSPYSPEETSRRVNKVMRARLYLLQQIGPNSFLIGGDSPDNKYRVFIGPQNCSCG
345

             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        386 PSPDGFSPYSPEETSRRVNKVMRARLYLLQQIGPNSFLIGGDSPDNKYRVFIGPQNCSCG
445

Qy        346 RGAFCIHLLFVMLRVFQLEPSDPMLWRKTLKNFEVESLFQKYHSRRSSRIKAPSRNTIQK
405

             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        446 RGAFCIHLLFVMLRVFQLEPSDPMLWRKTLKNFEVESLFQKYHSRRSSRIKAPSRNTIQK
505

Qy        406 FVSRMSNSHTLSSSSTSTSSSENSIKDEEEQMCPICLLGMLDEESLTVCEDGCRNKLHHH
465

             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        506 FVSRMSNSHTLSSSSTSTSSSENSIKDEEEQMCPICLLGMLDEESLTVCEDGCRNKLHHH
565

Qy        466 CMSIWAEECRRNREPLICPLCRSKWRSHDFYSHELSSPVESPASLRAVQQPSSPQQPVAG
525

             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        566 CMSIWAEECRRNREPLICPLCRSKWRSHDFYSHELSSPVESPASLRAVQQPSSPQQPVAG
625

Qy        526 SQRRNQESSFNLTHFGTQQIPSAYKDLAEPWIQVFGMELVGCLFSRNWNVREMALRRLSH
585

             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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Db        626 SQRRNQESSFNLTHFGTQQIPSAYKDLAEPWIQVFGMELVGCLFSRNWNVREMALRRLSH
685

Qy        586 DVSGALLLANGESTGNSGGGSGGSLSAGAASGSSQPSISGDVVEACCSVLSIVCADPVYK
645
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        686 DVSGALLLANGESTGNSGGGSGGSLSAGAASGSSQPSISGDVVEACCSVLSIVCADPVYK
745

Qy        646 VYVAALKTLRAMLVYTPCHSLAERIKLQRLLRPVVDTILVKCADANSRTSQLSISTVLEL
705
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        746 VYVAALKTLRAMLVYTPCHSLAERIKLQRLLRPVVDTILVKCADANSRTSQLSISTVLEL
805

Qy        706 CKGQAGELAVGREILKAGSIGVGGVDYVLSCILGNQAESNNWQELLGRLCLIDRLLLEFP
765
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        806 CKGQAGELAVGREILKAGSIGVGGVDYVLSCILGNQAESNNWQELLGRLCLIDRLLLEFP
865

Qy        766 AEFYPHIVSTDVSQAEPVEIRYKKLLSLLTFALQSIDNSHSMVGKLSRRIYLSSARMVTA
825
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925

Qy        826 VPAVFSKLVTMLNASGSTHFTRMRRRLMAIADEVEIAEVIQLGVEDTVDGHQDSLQAVAP
885
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Db        926 VPAVFSKLVTMLNASGSTHFTRMRRRLMAIADEVEIAEVIQLGVEDTVDGHQDSLQAVAP
985

Qy        886 TSCLENSSLEHTVHREKTGKGLSATRLSASSEDISDRLAGVSVGLPSSTTTEQPKPAVQT
945
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        986 TSCLENSSLEHTVHREKTGKGLSATRLSASSEDISDRLAGVSVGLPSSTTTEQPKPAVQT
1045

Qy        946 KGRPHSQCLNSSPLSHAQLMFPAPSAPCSSAPSVPDISKHRPQAFVPCKIPSASPQTQRK
1005
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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1105

Qy       1006 FSLQFQRNCSEHRDSDQLSPVFTQSRPPPSSNIHRPKPSRPVPGSTSKLGDATKSSMTLD
1065
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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1165

Qy       1066 LGSASRCDDSFGGGGNSGNAVIPSDETVFTPVEDKCRLDVNTELNSSIEDLLEASMPSSD
1125
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Db       1166 LGSASRCDDSFGGGGNSGNAVIPSDETVFTPVEDKCRLDVNTELNSSIEDLLEASMPSSD
1225

Qy       1126 TTVTFKSEVAVLSPEKAENDDTYKDDVNHNQKCKEKMEAEEEEALAIAMAMSASQDALPI
1185
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1285

Qy       1186 VPQLQVENGEDIIIIQQDTPETLPGHTKAKQPYREDAEWLKGQQIGLGAFSSCYQAQDVG
1245
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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1345

Qy       1246 TGTLMAVKQVTYVRNTSSEQEEVVEALREEIRMMGHLNHPNIIRMLGATCEKSNYNLFIE
1305
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1405

Qy       1306 WMAGGSVAHLLSKYGAFKESVVINYTEQLLRGLSYLHENQIIHRDVKGANLLIDSTGQRL
1365
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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Qy       1366 RIADFGAAARLASKGTGAGEFQGQLLGTIAFMAPEVLRGQQYGRSCDVWSVGCAIIEMAC
1425
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1525

Qy       1426 AKPPWNAEKHSNHLALIFKIASATTAPSIPSHLSPGLRDVAVRCLELQPQDRPPSRELLK
1485
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1585

Qy       1486 HPVFRTTW 1493
              ||||||||
Db       1586 HPVFRTTW 1593
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to MINH-TAM DAVIS whose telephone number is 571-272-0830. The examiner can normally be reached on 9:00 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, SHANON FOLEY can be reached on 571-272-0898. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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April 26, 2007

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